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RECORDS OF
COLIAS GIGANTEA STRECKER (PIERIDAE)
FROM SOUTHEAST MANITOBA
AND ? MINNESOTA

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HOVANITZ (1950) RECORDED THE KNOWN RANGE of *Colias gigantea* Strecker as subarctic North America, from the northern limit of trees in Alaska east to Hudson Bay; southward, in willow bogs, to southern Canada, from the Rockies in Alberta eastward to the Manitoba Escarpment; then on south in the Rockies (as *scudderii* Reakirt) to Colorado and New Mexico—but suggests a possible range extension eastward to northern Minnesota, Wisconsin and Michigan in willow bogs. Up until now the only recorded range extension recorded was by Riotte (1962) who recorded specimens from three points on Hudson Bay in Ontario that extended the range eastward from Churchill to Fort Albany on James Bay. John Polusny, of Winnipeg (in litt.) reports a few solitary specimens of *Colias gigantea* in southeast Manitoba; but it is only recently that I have been able to confirm that it occurs south of the 53rd parallel, east of Lake Winnipeg.

On 8-10 August, 1969, I collected 5 males and 2 females of *Colias gigantea* at three localities between the O'Hanley and Sand (sometimes called Sandy) Rivers along Manitoba highway 304. These locations are just east of Lake Winnipeg and are between the 50th and 51st parallel. All of the specimens were taken in wet sphagnum/willow bogs and all were somewhat worn in condition. The determination of the females leaves little room for doubt: one of them is "white" with wing borders completely immaculate of black (this is a common variant situ-

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Fig. 1. Probable *Colias gigantea* Strecker. Male taken 2 August 1967 by W. A. Bergman near McNair, Lake County, Minnesota. Upper side above, lower side below. 175 percent actual size.

ation with female *gigantea*) while the other female is yellow with fully developed, but weakly scaled, black borders. The five males are distinguished from *C. interior* (with whom they are superficially very similar) by their larger size and association with willow bogs and the indicated females. A few specimens of *Colias interior* Scudder were taken in nearby locations. They were quite worn and tattered, indicating that *C. interior* probably has an earlier flight here than *C. gigantea*. The southeastern Manitoba specimens of *Colias gigantea* are very close in appearance to *Colias gigantea mayi* Chermock & Chermock from Riding Mountain, Manitoba. Like *mayi* they lack the heavy dark scaling on the ventral hindwing that is usually used as an identification character for *Colias gigantea*. Because of this, the key to *Colias* by Klots (1961) is ineffective for separating them into *gigantea*—the confusion resulting at couplet 4a-4b.

On August 2nd, 1967, Bill Bergman of Minneapolis collected a very large male *Colias* at McNair, Lake County, Minnesota. He was collecting along a railroad track that borders a bog when he noticed the butterfly in flight because of its apparently large size. After mounting the butterfly he asked me to examine it thinking it might be *C. gigantea*. In *Colias* a definitive determination of a single specimen is often impossible and until more Minnesota examples are collected we cannot be 100% positive that this specimen is indeed *gigantea*. However, in my own mind I am fairly certain that it is *gigantea*. The butterfly was taken in a potentially suitable habitat for *gigantea*, has a large wing expanse (29 mm. base to tip of forewing which is larger than any specimen of *C. interior* that we have seen from Minnesota), and while the specimen is quite worn, the markings (see figure 1) seem to fit in better with a series of *gigantea* than they do with *interior*. There are a couple of large male *Colias* in the John Nordin Collection, at Webster, South Dakota, which were taken in Koochiching County, Minnesota that also might prove to be *gigantea*. The Bergman specimen from Lake County has been placed in the American Museum of Natural History in New York City.

In addition to the specimens of *C. gigantea* mentioned in the preceding, I have taken several dozen specimens along the Manitoba Escarpment from Riding Mountain northward in western Manitoba. My preliminary field data suggests that the species may be associated with string bogs. String bogs are peculiar in that they are topographically aligned in strips up

and down slope. The climatic and edaphic conditions necessary to produce string bogs is not understood, but it is clearly different from the lake fill succession that is normally accepted for bogs south of the 53rd parallel. Most bogs north of the 53rd parallel are a result of the underlying permafrost that prevents water drainage through the top soil. String bogs, by nature of their being topographically aligned, can be assumed to have groundwater movement which may favor, at least in some areas, the growth of willows over black spruce. Heinselman (1963) records the presence of string bogs as far south as the north shore of Red Lake in Minnesota and (1965) at an isolated spot near Seney, Michigan. It would be interesting if the range of *Colias gigantea* continues to correspond with the areas in which string bogs occur as both of them become better known.

LITERATURE CITED

- HEINSELMAN, M. L., 1963. Forest sites, bog processes, and peatland types in the Glacial Lake Agassiz region, Minnesota. *Ecol. Monographs* 33: 327-347.
- . 1965. String bogs and other patterned organic terrain near Seney, Upper Michigan. *Ecology* 45: 185-188.
- HOVANITZ, W., 1950. The biology of *Colias* butterflies. I. The distribution of the North American species. *Wasman Jour. Biol.* 8: 49-75.
- KLOTS, A. B., 1961. Genus *Colias* in Ehrlich, P. R. & A. H. Ehrlich. How to know the butterflies. Wm. C. Brown Co., Dubuque, Iowa, 262 pp.
- RIOTTE, J. C. E., 1962. First additions to the northern Ontario list of butterflies. *Jour. Lepid. Soc.* 16: 243-245.